

**Indian Maritime University**  
**(A Central University, Govt of India)**

**March/April 2024 - Supplementary Examinations**

**Programme Name: BSc (NS)**

**Semester: V**

**Subject Code: UG21T5504**

**Subject Name: SPECIALIZED CARGO HANDLING & STOWAGE**

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Date: 05.04.2024

Max Marks: 70

Duration: 03 Hrs

Pass Marks: 35

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General Instructions

- (i) All Sections (A, B & C) are to be attempted.
- (ii) Options, if any, are specified in respective section.

**Section A**

Ten MCQs/Fill in the Blanks of 01 Mark each – Choose the correct answer as applicable.

1. Stowage of containers is based on :
  - A) Bay, Row & Tier.
  - B) Column, Tier & Row
  - C) Ullage , Sounding & Tier
  - D) None of the above.
  
2. During loading, what action should be taken if some refrigerated cargo is found to be damaged or thawed?
  - A) Reject the entire cargo
  - B) Load it separately from the undamaged cargo
  - C) Ignore it as long as it's less than 10% of the total cargo
  - D) Continue loading as usual
  
3. Guidelines for the prevention of pollution by Oil is stated in which of the below mentioned Annexes of MARPOL.
  - A)Annex II
  - B)Annex III
  - C)Annex I
  - D)Annex V
  
4. Guidelines for the Prevention of pollution by Noxious Liquid Substance is stated in which of the below mentioned Annexes of MARPOL.
  - A) Annex II
  - B) Annex III

- C) Annex I
- D) Annex V

5. Tank scope works in any condition of the tank that is Inerted and Gas Free.  
A) True B) False
6. What is the purpose of the IGC Code in the context of gas tankers?  
A) To regulate the temperature of cargo tanks.  
B) To specify the design requirements for gas containment systems.  
C) To control the use of deepwell pumps.  
D) To provide guidelines for tank cleaning procedures.
7. The various types of chemical tankers are :-  
A) Type A, Type B, Type C  
B) X, Y, Z & OS  
C) Type 1, Type 2, Type 3  
D) None of the above.
8. What does "DP" stand for in the context of Offshore Supply Vessels?  
A) Dynamic Positioning  
B) Deepwater Port  
C) Drilling Platform  
D) Diving Procedure
9. What equipment will you use to measure the percentage by volume of hydrocarbon gas in cargo tanks on an oil tanker?  
A) Oxygen analyser  
B) Explosimeter  
C) Tankscope  
D) Gascope
10. How many types of LNG ships are there.  
A) 3  
B) 2  
C) 4  
D) None of the Above.

### **Section B**

Five Questions of 02 Marks each

11. What do you understand by "Transverse Racking Test Force" on a container ship.
12. Define RVP & TVP.
13. State the types of Offshore vessel.
14. What is MARVS?
15. Define Spike Crude Oil

### **Section C**

Seven Questions of 10 Marks each of which any 05 questions to be answered.

16. A) Define purging and its purpose. (4 Marks)  
B) What are the different ways of doing purging. Describe with the help of diagram. (6 Marks)
17. With respect to reefer ships explain the following:  
(a) Care, monitoring and records of cargo during passage- (5 Marks)  
(b) Purpose of temperature recording. (5 Marks)
18. (a) Draw and label the flammability diagram. (5 marks)  
(b) Provide detailed explanation of flammability diagram. (5 Marks)
19. A) State the different types of Chemical cargoes. (4marks)  
B) State the difference between these types of chemical cargoes.(6 marks)
20. A tank Measuring 21m x 16m x 16m has an ullage Port extending 0.8m above the top of the tank. It is to be loaded with crude oil at 24°C. 2% of the tank volume is to be left for expansion when maximum temperature expected during the voyage is 40 dog Celsius. (Density of oil = 0.820 @ 15 deg Celsius in vacuum. Given: VCF (40) – 0.9785; VCF (24) - 0.9923.  
Find the:(a) Mass of oil loaded (b) Ullage at load Port. (10 Marks)
21. a) Sketch and label type A prismatic tank in a fully refrigerated gas carrier.  
b) Explain the hazards of Gas Cargo (any five). (2x5=10 Marks)
- 22.(a) What are the measures taken to maintain watertight integrity of ro-ro cargo spaces? Write any five. (5 Marks)  
(b) What precautions we should take while loading / discharging a heavy lift? Write any five. (5 Marks)